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A Guide for the Preparation and Use of Overhead and Slide Visuals

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1 INTRODUCTION

It is widely accepted that verbal presentations can be enhanced with the addition of well-conceived and properly prepared visual aids. Most often these visual aids are projectable, using either 35 mm slide or overhead formats.

This booklet provides a set of guidelines for the preparation of slide and overhead visuals. The emphasis is on the presentation of quantitative information, though the presentation of concepts and abstract ideas will also be discussed. Guidelines in themselves will not make anyone an expert; but at the very least they will prevent the reader from making common mistakes, and at best they will provide him or her with a new awareness of what constitutes an effective visual. The ability to discern quality and evaluate your own work is fundamental to improvement. And most important, a good presentation with good visuals requires that you, the communicator, be clear about your message and about where your audience presently stands in relation to your message.

Furthermore, guidelines are not rules. The ultimate test of an effective visual is whether it works, and whether it works specifically in each user/audience/delivery context.

Planning and preparing a workshop or seminar presentation is a time-consuming and expensive exercise. If it is well done and the presentation is a success, the benefits may be large. If, however, it is poorly conceived, poorly prepared or poorly presented, the cost is very high. Costs include lost productivity for the technical and professional staff sitting through the presentation, the travel and accommodation for these people, the loss of goodwill for the organization and individual making the presentation, and the costs that were incurred during development of the presentation.

The investment made in visuals must be reconciled against the potential return to be gained from their use. If the presentation images are likely to lead to a major funding or management decision, more expense is justified than for an incremental addition to the general body of knowledge. The number of people reached, in terms of either a single large audience or repeated small audiences, makes a difference to the cost-effectiveness of a set of visuals. More people reached justifies more investment. Similarly, if a particular component of the presentation would make a worthwhile addition to the symbol library,[1] investment over and above the minimum may be warranted.

We hope that the underlying principles and practical recommendations presented in this booklet will assist you and contribute to a new level of excellence in the communication of information to the forestry community.

2 OVERHEADS OR SLIDES?

Understanding the basic characteristics of the two most common formats of presentation visuals — overheads and slides — will help you to select the appropriate medium for a given situation. Although it has been done successfully, use of both slides and overheads during a single presentation is not widely recommended. Table 1 lists advantages and disadvantages associated with slide and overhead formats.

Overheads are the preferred medium if you have a small audience with whom you wish to interact during the presentation. Slides are better if you have a substantial number of field photos in your presentation, or if you are speaking to a large audience.

---

1 A symbol library has been established by the Research Branch, B.C. Ministry of Forests. It contains PC-based colour graphic symbols on a variety of forestry subjects.

TABLE 1. The advantages and disadvantages of slide and overhead formats

Projection system	Audience size	Pros	Cons
Overhead	6 - 30	• room lights may be on while overhead is in use • black-out curtains not required; therefore, suited to presentations where room conditions are unknown or not easily controlled • instructor can write on or modify image during presentation • audience can easily see and interact with presenter • order of visuals easily changed during presentation	• obtrusive, located in front of or within audience – somewhat noisy • most effective with smaller audience • expensive to incorporate "in-the-field" photos • images compete with presenter for audience attention
35 mm slide	10 - 200 +	• suited to larger audiences • able to incorporate "in-the-field" photos with man-made images • greater image sharpness and therefore suited to complex images • projector can be located behind audience and operated remotely; less noise • visuals tend to receive more attention than presenter due to room lighting	• requires dark or near-dark room • little opportunity to change the order of visuals during presentation • less convenient to alter or change an image at short notice or while "on the road"

3 DEVELOPING A SEQUENCE

Good presentations do not simply result from a collection of visuals, each of which might be excellent on its own. In addition to good visual support, presentations require the application of many skills most of which cannot be discussed in this set of guidelines. We will, however, draw your attention to some fundamentals that influence the design of the visuals you will use.

The skills for designing a superb presentation are similar to those for writing a book, or a play, or a good computer program. As designer, you must choose your threads and weave them in at the right time, not only to display each to advantage, but also to support the developing fabric.

Selecting Key Information

The first requirement of a good presentation is to select just the information that best gets your idea across, and no more. This could mean a short, bare bones approach, but it does not preclude an enriched approach. You must avoid inserting material that belongs in a different presentation, or using the presentation to demonstrate how clever you are with visuals.

Good judgement and common sense are the best guides. You must simply ask yourself whether the information you are including supports or detracts from the thrust of the presentation.

Developing an Idea

Some of the more interesting ideas you wish to include in the presentation probably developed in your own mind over a period of time and are the result of observations from an array of possibilities. The point is that you have followed a path to come to the understanding you have, and you cannot expect to hand over the full-blown idea to an audience with mixed backgrounds without leading them through the sequence as well. It does not have to be the same (possibly convoluted) journey you took. From the perspective of having reached the end, you can probably see a much simpler path. Not all paths of discovery are fundamentally different; you may simply have to report something new you saw on the way. Sometimes all that is needed is to explain what you did, what you observed, and what you conclude from that.

Perhaps the best advice to give at this point is to recommend that complex graphs not be presented all at once. A series of graphs, or a series of overlays on the same graph, will allow the audience to develop an understanding of your ideas as you present them.

Developing a Storyline

Storylines

Besides presenting individual ideas in a palatable order, you as presenter need to consider the overall organization of the presentation. You should think of the presentation as a "story." There are several archetypical storylines from which to choose (Figure 1).

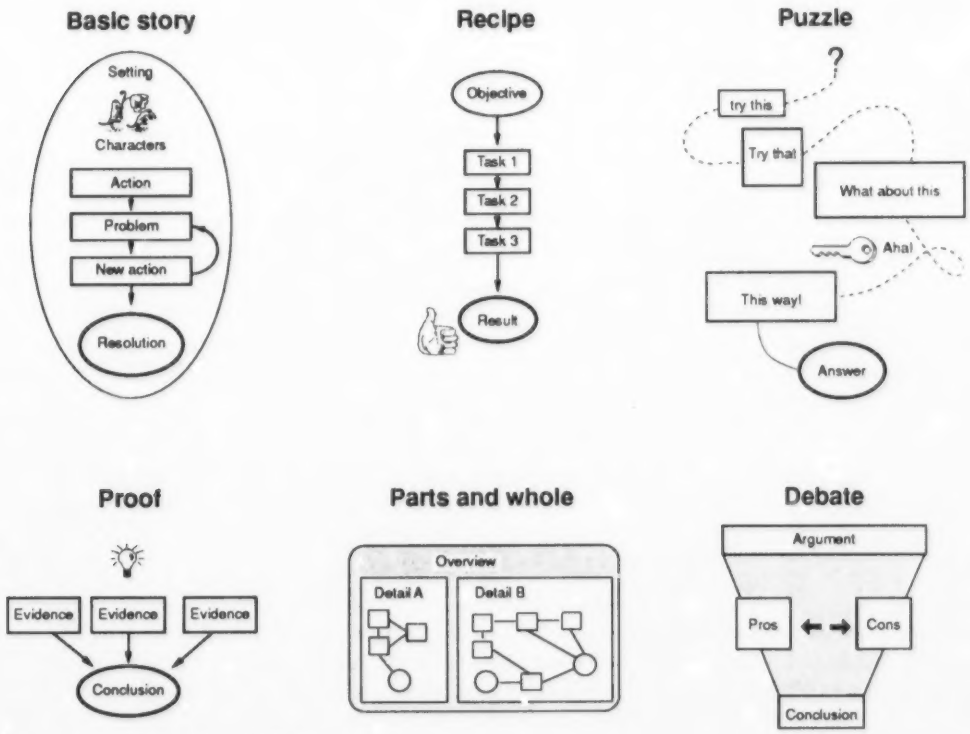


FIGURE 1. Six classic storylines.

The variations are, of course, innumerable, and each form has specific advantages. What matters most, however, is that the storyline be appropriate to the ideas, that you feel comfortable with the storyline you have chosen, and that the audience be receptive to any departures you have taken from storylines which are standard for their discipline. (For example, if the "proof" structure is usually used, would the audience welcome the "puzzle" storyline?)

Using a storyboard

Storyboards were evolved in the film industry where they consisted of walls or boards on which cards with sketches and notes could be arrayed to develop the "story" for the film. Each scene would have its own card, and the order of the scenes could be rearranged until the desired development was found.

The approach is extremely useful to people preparing any presentation with visuals. It provides a way of designing with both visuals and text in parallel. One alternative, writing a script and then attempting to illustrate it, has two notable disadvantages. First, it assumes that the words are to carry the message and the visuals are there only to enhance or illustrate. In many cases the visuals are the more powerful communication tools for complex ideas. Second, it can make the task of developing illustrations difficult as the verbal expressions may not match the imagery that is part of your thinking or that best conveys the idea. The other alternative, developing the visuals first and then writing a script to describe them, is also not recommended. Words and visuals are best developed coherently, and storyboards are intended to encourage this.

Storyboards can take any format: rough sketches and point form notes scribbled on paper; special forms on which visuals and text are recorded; 3 x 5-inch index cards or 8 1/2 x 11-inch sheets of paper on which each visual and text idea is itemized; or computerized "storyboarding" programs (Figure 2).

Road Maps for the Audience

Given that your presentation has a structure, it is often easier for the audience to follow the presentation if they are aware of the structure (or story) and where they are in it. They need, in a sense, a road map of the presentation. An outline provided at the beginning is most frequently used to serve this purpose. In a long presentation, you should refer to the outline at various points to indicate the current "location" on the map. Other formats can also be used, such as flow charts that show your basic storyline. You can even generate an icon or simplified version of the flow chart and display it with the "you are here" location highlighted along with subtitles as you move through the story. Many presenters prefer to provide a durable outline in the form of a handout or flipchart sheets so that the audience can refer to it at any time during the presentation.

Pacing and Consistency

Your presentation will likely include spoken segments with no visuals, as well as segments with visuals which may consist of words, graphs, and pictures. Each has its virtues, and should be used accordingly. Furthermore, reliance on any one type of visual (e.g., text slides) can lull the audience's attention. There is an art to selecting a good mix of approaches and delivering it at a suitable pace.

Many guidelines are contradictory when it comes to recommending how many minutes per visual are effective, or how many visuals per 20-minute presentation. Clearly, there is an upper limit determined by the projection technology you are using, and by the cost and effort involved in visuals production. There is also an upper limit imposed by the ability of your audience to focus on and absorb information, although that does not readily translate into number of visuals. (Professionally made multimedia programs may have as many as 60 visuals per minute.) What matters is the rate of ideas and the amount of interpretation required, not the number of images.

FIGURE 2. Storyboards encourage you to develop your words and visuals coherently.

In most cases, a complex idea explained with three to four relatively simple visuals is more effective than the same idea represented in the same time by a single complicated visual. You have to allow time for the audience to focus on each image — at least 10 seconds (unless you are using image-to-image dissolve techniques to generate animation-like sequences). In most circumstances, you should allow time to explain verbally the ideas that go with the visual, and this should take from 30 seconds to a couple of minutes. A visual that is used for longer than that becomes part of the background and, if you so choose, could be a suitable backdrop for a portion of your talk.

The audience will find each new visual easier to interpret if you use a consistent style and layout. This way they will learn the visual "language" you are using and spend less time on interpretation.

Many presenters like to use a piece of paper to hide sections of an overhead and progressively disclose sections of it. Some people, however, resent this treatment because they do not like to be told at what speed to read. A better alternative is to use the additive approach. Rather than hiding and revealing, you add layers to existing information. This works well in both slide and overhead formats. Use successive slides to add points or to fill in details. If you layer overhead transparencies, you will need frames to ensure alignment without fuss. If there is too much on a visual to be shown at once, use two or more visuals. The disclosure approach does work well if it is treated as two independent but related ideas which build on or contrast with each other. Again, a frame with a flap taped on to hide the second part is easier to handle than loose pieces of paper.

4 DESIGNING A VISUAL

Good visuals are simple in design and information, usually presenting only one thought.

Visuals are made up of words and figures, which in turn may be composed of a number of elements including photographs, drawings, graphs and type, with attributes of size, colour, line and layout. Since the possible number of combinations to present any thought is almost infinite, it would be easy to produce an incomprehensible visual. This section works through this complexity by first discussing general principles, and then providing details related to using words and figures.

Principles

In preparing visuals, whether by hand or using the most sophisticated computer software and recording devices, the most important criterion in their design is whether the information will be communicated to the audience. This criterion must never be sacrificed for cost, ease of preparation, or beauty. Communication implies that the audience can see the information presented and readily comprehend it (Figure 3).

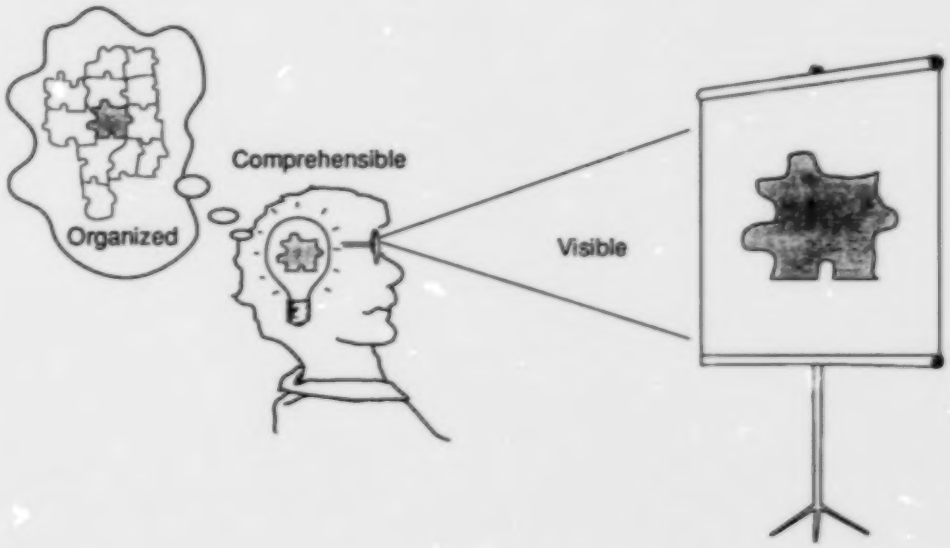


FIGURE 3. The audience must be able to see the image presented, comprehend what it says, and understand how it fits with related ideas.

Comprehension Factors

Language/idiom

For your visual to be comprehensible, it has to be created in the language of your audience. This clearly applies to technical language (jargon), which is only appropriate if that is the language of your audience. It also applies to what information can be perceived. The variable or the idea represented in the visual should be familiar, or should be carefully developed in terms of the familiar. For example, "site index" is understood by foresters and can be used as a building block for explaining

something more complex. Similarly, the units of measure should be ones used often enough that no mental translation is required. The audience should be able to devote all of its attention to the message rather than to the communication process.

Relevancy of data

Frequently, researchers become immersed in their projects and have difficulty selecting a limited representation of their findings for a 20-minute presentation. This is true not only in terms of how much can be covered in the talk, but also in terms of how much detail should be included in any one visual. You are better to include only that which substantially contributes to your message, and to leave out the other interesting tidbits. The extra information usually distracts and confuses rather than enriches. It is therefore rarely appropriate to present all your data comparisons. Rather, use only those that present the point you wish to make.

Appropriate form

Some ways of presenting an idea are more effective than others. Usually the simplest way is best — for example, in describing an object or location, a picture works best. For a single value, the number that represents it (e.g., 3000 ha or 94%) is enough; for a comparison of two or three values, a bar graph will do; and for the relationship between two variables for 100 samples, a scattergram and/or regression may work well (as long as the audience understands regressions!).

When complex interrelationships need to be shown, presenters have a tendency to use only one figure, such as a three-dimensional graph. Such a figure may serve well to summarize and synthesize what is already understood, but they can be poor at explaining relationships for the first time. More effective is to use a series of simple visuals to build the ideas. Of course, if a technical audience often deals with a particular complex graph, they can think in that "language", and so its use is appropriate.

Legibility

The fundamental requirement of a visual is that it must be seen — it must be legible.

The mistake most often made is to have it too small. "I know you can't see this but it says..." How big should it be? Specific guidelines for type sizes will be presented in the next section, but here we can offer a rule of thumb. If, while standing, you can read your 8 1/2 x 11-inch visual lying on the floor, then your audience will be able to see it from the back of the room when it is projected on a screen (Figure 4). This rule is based on the proportion of your visual field taken up by the image.

The second common mistake is to include more than can be "read" in the time allowed. In other words, the audience will not be able to see all of your visual in less than 10 seconds. Usually in a presentation there is no silent reading time. The audience is expected to "parallel process", that is, to look and listen at the same time. If you present too much in the visual, some people will ignore your talk, others will ignore your visual, and still others will vacillate or give up entirely in frustration . . . and your message is lost.

Organization

Audience comprehension has a lot to do with the order and organization of a presentation. This is true at all levels, namely, how the visual itself is organized, how the thought is organized through a series of visuals, and how a string of thoughts is presented to develop the message in a presentation. The organization within visuals is addressed in later sections of this guide dealing with words, figures, and layout; the organization of thoughts is dealt with in the sections on sequence.

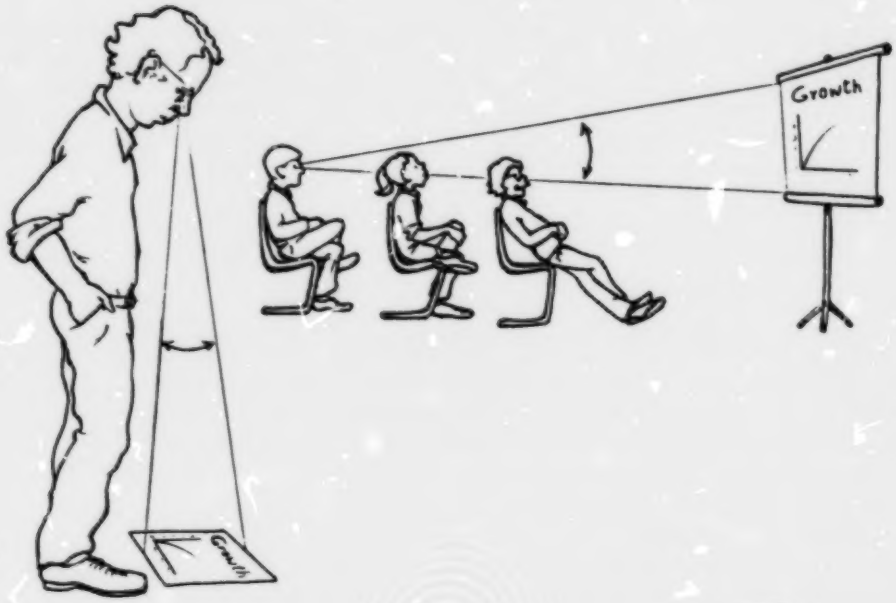


FIGURE 4. Test the legibility of your visuals well before your presentation. This simple test will ensure that your audience can read your visuals.

The quality of a visuals presentation is also affected by the logistics of how your visuals are presented — preferably with no fuss. This means you must have a system of keeping them in the right order and orientation — and a way of quickly getting them back in the right order following a spill. It also means having equipment that works. Never assume that equipment works; check ahead of time. The lack of window blinds for a slide presentation, or of an extension cord or spare bulb — or even of a projector or screen — can completely spoil a visual presentation. And consider: If, for some reason, your visuals **do not** work, can you give your presentation without them?

Words

Use of words

Words are wonderful symbols rich in meaning. They can be arrayed in infinite combinations to convey the most subtle of thoughts. Words can also be heard and seen — and there is a difference in how people process each form. Some people cannot fully comprehend a new word unless they can see it written; others have to convert written words to silent sounds to comprehend them. Making key words in a presentation available to both senses (by speaking and having them written on your visual), has been shown to double the comprehension and retention of the information. On the other hand, too many words place the audience in the role of reading text rather than participating in the presentation. Use words in visuals sparingly, selecting those which are most effective and have the same meaning to you and your audience.

Titles

Titles define the context within which the rest of the information should be interpreted. They are usually not needed in presentations, as the context is most often supplied by the speaker. However, they do serve as a convenience for listeners whose attention may have wandered, and they make it easier for visuals to be adapted to several presentations.

Titles are used to name the presentation or a section of the presentation, or to name the contents of individual slides such as lists, data, locations, or graphs. They should be short. For example, the written title for this booklet is *"A Guide for the Preparation and Use of Overhead and Slide Visuals."* If this were to be a title slide for a presentation it could easily be shortened to "Guidelines for Visuals," and if it were the name of a list in a presentation, it could simply be "Guidelines." Capitalization of first letters of the first word and all major words is not required, but is conventional, and recommended for consistency.

Labels

Labels are used to interpret specific visual elements which may not be otherwise clear. Labels should be extremely short, usually nothing but the name of the element (e.g., xylem, Port Hardy, ESSFa, control), and unless the word is a name which is normally capitalized, labels should all be lowercase. Labels should also be used sparingly, only where required to remove ambiguity (Figure 5). This means that only labels that are referred to in the presentation or that permit the reader to interpret the rest of the visual (e g., known reference points such as rivers or cities on a map) should be included.

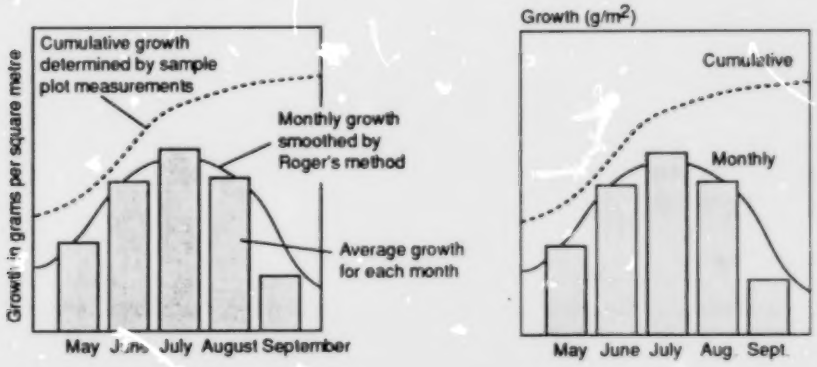

Cumulative growth determined by sample plot measurements
Monthly growth smoothed by Roger's method
Average growth for each month
Growth in grams per square metre
May June July August September
Growth (g/m2)
Cumulative
Monthly
May June July Aug. Sept.

FIGURE 5. Keep labels brief and minimize their use.

Keywords

Keywords are intended to provide a parallel visual channel to the auditory or spoken channel. They are never the whole speech written out, though sometimes they tend in that direction. Anyone who has suffered through a talk with 20-30 pages of text, even if legible, will realize that an excess of "keywords" is worse than none at all.

There are two approaches to selecting keywords. One is to use them to clarify the structure of the presentation and the relationship between the ideas being discussed. Keywords derived from this approach represent an outline. The other approach is to choose words that signify important or new ideas, such as "alleopathy," "effective rooting depth," or "re-entry period." The intention is to reinforce the name or idea, and provide a focus for the audience (Figure 6).

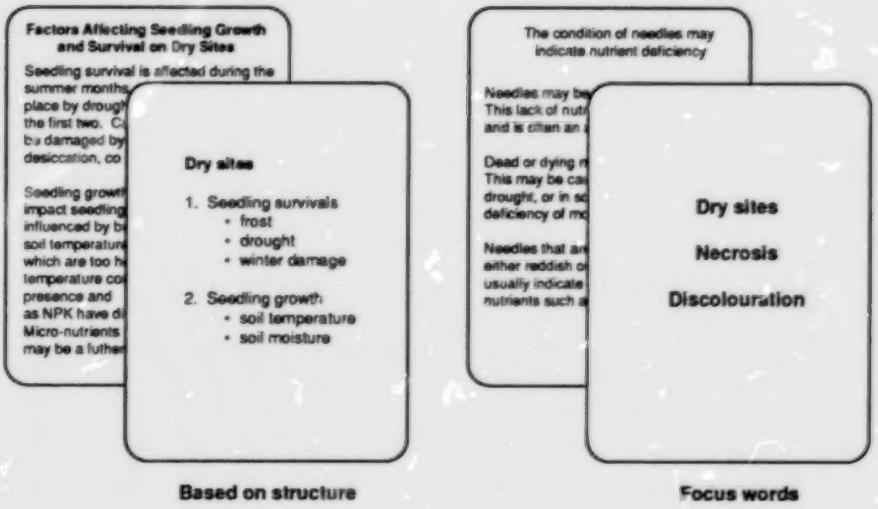


FIGURE 6. Keywords can be chosen that provide an outline of your presentation or represent significant ideas.

The fewer keywords used, the greater the impact of any one. A rule of thumb for a maximum number is seven words or short (two- to five-word) phrases — the maximum number that people can recognize without enumeration. Many people think in twos or threes — the two main points or the three main ideas — so if the material at hand can easily be packaged into two or three keywords or phrases, it is relatively easily absorbed.

Relationships

A map shows, by the arrangement of symbols on a page, the spatial relationship of objects in the world. In the same way, the arrangement of words on a page can represent the relationship between the ideas the words symbolize. The most common example is points and subpoints, and ideas and details that belong to them. Other examples are flow charts and organization charts. More subtle relationships can be clarified by adding shapes such as circles and squares to the words so that ideas can be presented as enclosed, in parallel, or in sequence to one another through their arrangement on the page.

Legibility

Anatomy of type

Letters have an anatomy. Starting from the baseline, the size of the letter is measured according to the lowercase letter x; the x-height. Capital (uppercase) letters are taller, and sometimes overlap the baseline. The size of type, in terms of how much space it will take on the page, is measured in maximum letter height, expressed in "points." Points are a unit of measure used in the graphics and print industry; there are 72 points to an inch. Lowercase letters have

ascenders that rise above the x height (b, t, h) and descenders that go below the baseline (p, g, y). Letters have bowls or counters, areas within their face partially or completely enclosed by strokes (p, d, c). Letters may be serif, having small lines extending from and at an angle to their top and bottom strokes (r, m, s), or sans serif — without serifs (r, m, s).

This phrase is 10 points.

This phrase is 12 points.

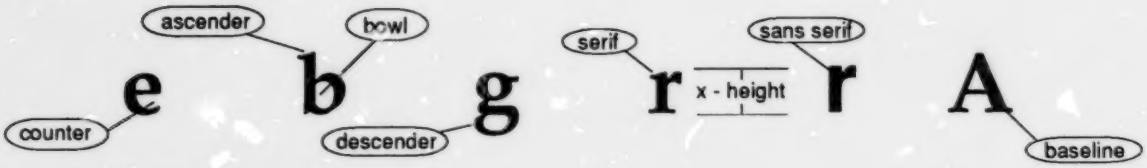
This phrase is 14 points.

This phrase is 18 points.

This phrase is 24 points.

This phrase is 30 points. (≈ 8 mm high)

This phrase is 36 points.



Type comes in many variations or "fonts," each with a different look. Various fancy styles that mimic handwritten script, medieval text or old technology computers are also available, but would not normally be used for visuals.

Serif	Sans Serif
Times	Chicago
New York	Helvetica
Courier	Geneva
	Avant Garde

Word processors and typesetters add one more attribute besides font and size — that is "style." For example:

Words can be plain.

Words can be bold.

Words can be italic.

Words can be underlined.

Words can be outlined or **shadowed**.

Recommended sizes and styles

Studies have shown that the lowercase alphabet is more legible than the uppercase alphabet. This is partly due to the greater variation in character height, width, and outline caused to some degree by ascenders and descenders, and partly due to the greater familiarity people have with lowercase because most text is printed that way. Use the lowercase alphabet except as required for proper nouns, first letters in titles, and as may be occasionally required to highlight a word.

Serifs are intended to make text more legible by tying letters into word-size bites; people read whole words or phrases at a glance, not individual letters. However, when the number of words is small, and the objective is to minimize unnecessary detail as in presentation visuals, the clean, crisp lines and consistent line thickness of the sans serif letters makes them the better choice. The Helvetica family (or its equivalent) is most popular and readily available.

Type weight can greatly influence legibility. Light weight types tend to break apart where lines are thin, especially when photocopies are made. Similarly, bold and black type weights can thicken-up, reducing the size of counters and bowls and reducing the apparent height of ascenders and descenders especially with smaller type sizes. Each of these effects can reduce legibility. For visuals, you should use regular or old bold type styles, depending on the size and font available. Emphasis can be obtained by having most of the text regular and selected words bold. Italics are suitable for distinguishing specific words such as scientific names. Underlining does not work well in visuals. The line not only interferes with descenders, but also becomes a superfluous graphic element which can misdirect attention from graph axes or other lines.

The size and number of words and lines are the greatest determinants of legibility. Experience with 8 1/2 x 11-inch letter-size artwork using regular letter and wordspacing has shown that the following sizes and densities are easily read:

	Overheads	**Slides**
Character size	18 - 36 pt.	14 - 24 pt.
Rows of type (max.)	1 - 6 (12)	1 - 4 (8)
Max. characters/row	24	30

All point sizes above assume that characters will be solid in colour and prepared by computer or other electronic or mechanical lettering system (e.g., letraset, leroy, plotter). Free-hand lettering must be larger to ensure legibility.

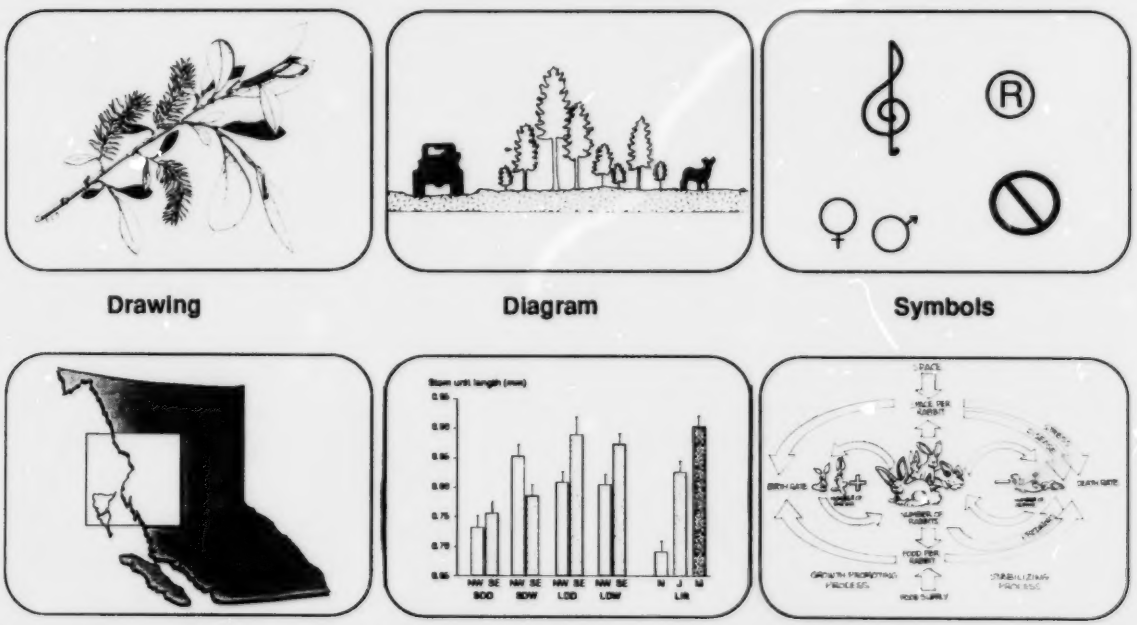
When you are numbering, use Arabic rather than Roman numerals, which take more time to read. Minimize the use of punctuation in text. It is usually not necessary when information is presented in point-form with an effective layout. Where no rank is intended, use of bullets or bold dashes to identify each new point is preferred over numbers or other symbols. **Remember to keep the amount of information on each visual to a minimum.**

The guidelines above generally work. However, systems and materials do differ, so it is always best to test your text selection by projecting a sample visual. **Remember that when you evaluate legibility, you already know what is supposed to be there. It is therefore useful to have an independent observer test legibility.**

Figures

Use of figures

Viewer retention and recall of a particular point can be significantly improved if figures rather than only words are used. Studies have shown that figures result in anywhere from 50 to 200% improvement in understanding and retention. This range most likely reflects the nature of the information. For example, descriptions of objects or places or comparisons of data sets are very difficult to present as words only. Figures are, in many instances, a more direct form of communication, and they capitalize on our highly developed visual system which is capable of handling large amounts of information (Figure 7).



Drawing **Diagram** **Symbols**

Map **Graph** **Cartoon**

FIGURE 7. Figures can take many forms, for example, pictures, drawings, diagrams, symbols, maps, graphs, or cartoons.

Pictures

Pictures are the most effective way of showing what something is like: a field location, a type of damage, a species of plant, an experimental set up. Photographs are generally used for this, though good quality drawings may be more useful where extraneous information needs to be excluded (e.g., botanical drawings).

Diagrams/symbols/maps

Diagrams can be simplified pictures. If pictures are dramatically simplified they are called symbols; if they are only slightly simplified the distinction between a picture and a diagram may become unclear. Maps are a form of diagram which represent the spatial relationships between objects. Other relationships between objects (e.g., how closely they are related, or whether one is a part of another) can also be shown in diagrams. Diagrams are particularly useful for drawing distinctions and for naming parts.

Graphs: quantitative

In sciences, including forestry, one of the most valuable uses of figures is in showing quantitative relationships. The simplest form of a graph is a comparison between two or more variables. In making this form of graph, we use the direct understanding people have in comparing real world sizes. Since people are better at estimating and comparing linear measures than areas or volumes, bar graphs are recommended over any other shape where size represents quantity. Stacked bar graphs are easily interpreted only in terms of the bottom variable and the total; comparison across bars which are not placed on the same bottom line is difficult. In most situations, bars should not be stacked more than two high, and even then discretion should be used.

Pie graphs are also effective where you want to indicate proportions, but they are not good for portraying quantitative values. In a bar or pie graph, two to five comparisons can be easily interpreted. Bar graphs in which a series of bars follow a clear pattern (e.g., increasing heights, or two distinct groups of heights) can also be easily understood (Figure 8). Pie graphs that use the area of the circle to compare both total amounts and sectors between pies communicate the general sense fairly well, but the quantitative relationships cannot be accurately interpreted because people do not estimate or compare the areas of circles accurately.

The use of icons, such as variously sized trees or people, is particularly confusing. Usually it is not clear to the reader whether he or she is to take the height, area or volume as the dimension representing quantity; and even if that is specified, the presence of the other attributes can still be confusing.

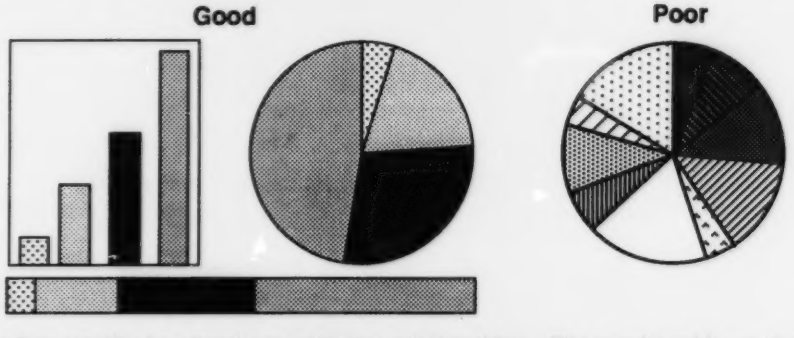


FIGURE 8. Use bar graphs for simple quantitative relationships. Pie graphs with up to five segments are good for illustrating qualitative relationships or proportions.

Graphs can be used not only to compare values, but also to express the relationship between two or more variables. Most commonly this is done in an x-y coordinate system, with one of two variables being represented on each axis. Scattergrams, line graphs, and regressions fit this category (Figure 9). A third comparison is often added by having different lines represent different circumstances. Two or three lines can be easily compared. Beyond this, however, interpretation becomes sporadic. It is also possible for comparisons to be made between two or more parallel graphs to show changing relationships under various circumstances. If this is done, the graphs should be lined up in such a way that the relevant distinction is easily seen. For example, if you are comparing something on the y axis, the graphs should be side by side. In presentations it is best to use one graph per point or comparison. Do not try to summarize all the results in a single comprehensive graph.

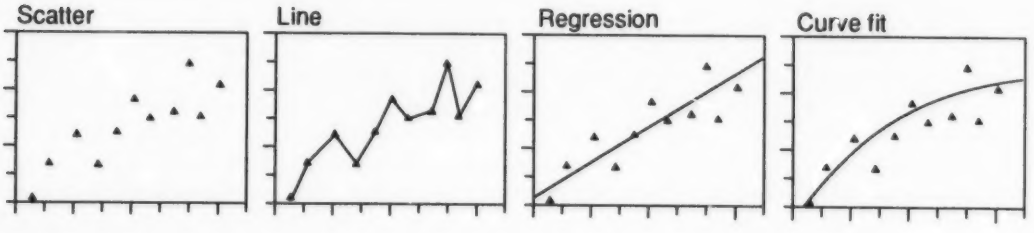


FIGURE 9. Graphs can be used to express the relationship between two or more variables.

With the advent of computer-generated graphs, it is easy for people to be uncritical about what is plotted. The temptation to generate very complex three-dimensional graphs (which were hard to draw by hand) is often great. Again, the presenter must recognize the distinction between a graphic which summarizes a lot of ideas (and thus looks great to the presenter) and a series of graphs which effectively communicate those ideas. Many three-dimensional plots are not appropriate in that all three variables are not continuous, or the surface created may have no real meaning. It may be more appropriate to draw several lines on a two-dimensional graph (Figure 10). Some information does, of course, benefit from three-dimensional representation: the most familiar of these is a contour map. The height variable on a map can also represent the amount that some variable is spatially distributed (e.g., the occurrence of a pollutant or the frequency of fire).

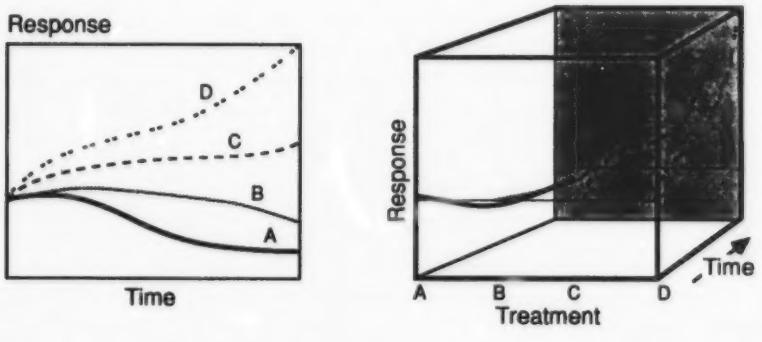


FIGURE 10. Use 3-D plots with caution. Several lines on a 2-D graph may be easier to understand.

In a few situations, the surface generated between three variables is beneficial to understanding. Unless the format is already familiar to the audience, however, this type of graph needs to be carefully developed through several simpler steps.

Legibility

Labels

The size and style of letters to use as labels is the same as for any words, though slightly smaller sizes may be tolerated (e.g., 14-point bold for overheads). Labels should be placed as close as possible to the item being identified, and the use of pointers should be minimized. If an area is being labelled, the label can be placed inside that area. Where possible, labels should be aligned to produce a neat appearance.

Lines and grids

Lines in graphs used for presentation visuals should be thicker than those used for publication. Hairlines, in particular, can be virtually invisible. Use the thickest line available that does not look "clumsy" (e.g., 2 mm). To focus attention, the lines indicating data trends should be heavier than axis lines. If several lines are being used, distinguish them by using dashes, dots or, preferably, colours (see below). Do not be tempted to use a large variety of line patterns (e.g., dash/dot, short dash, long dash) as these are not easily distinguished in a visual. Your desire to use them may also imply that you have too many trends on one graph.

Scales

Scales, as with the axes of a graph, do not need to be as extensive in a presentation visual as for a publication. In the presentation, the viewers will see the general form and hear your verbal emphasis for specific values. If your axes goes from 0 to 10, you would not need to number each increment, but rather every other number or only the end and mid-points. The numbers chosen for the scales should be simple integers that make sense in terms of the data. If certain values on a graph are critical, they can be labelled specifically. Tick marks, though they do not really interfere, are not necessary. The same guidelines that determine legibility of words also apply to numbers.

Fills: patterns and colours

Bar graphs, pie graphs and maps are often filled with a pattern or colour to distinguish one area from another. Computer graphics programs make many fills available, and novices are tempted to use them all. There are several reasons you should exercise care when choosing fills. First, fancy fills that mimic basketry or bricks are distracting. Second, the relative darkness between various fills is an important distinction. Shades of grey do not copy well, so choose a sparse dot pattern for your lightest grey, diagonal lines for your middle grey, and a solid grey for your darkest colour. Third, horizontal or vertical line fills are confounded with axes and bar outlines, and should be avoided. Finally, what looks good on a screen may not print well, copy well, or project well. You should test your choice (Figure 11). Fill patterns should not be used in computer-generated graphs that will be output as colour slides or overheads. In these instances, use complimentary colours instead of patterns.

Colour provides another dimension for distinctions. Solid bright colours can be used with no need to resort to patterns. Colours convey meaning as well: for example, green usually is associated with "go," "live," "good," whereas red is associated with "danger," "important," "fire." Where a continuum is intended, it is best not to choose a wide palette of colour, which would appear kaleidoscopic, but rather a short segment of the spectrum (e.g., from red to orange to yellow, or yellow to green to blue — or even shades of the same colour, such as navy blue, royal

blue, medium blue and sky blue). The order of colours can be chosen to correspond to some meaning in the data, where the more intense colour usually means more or more important.

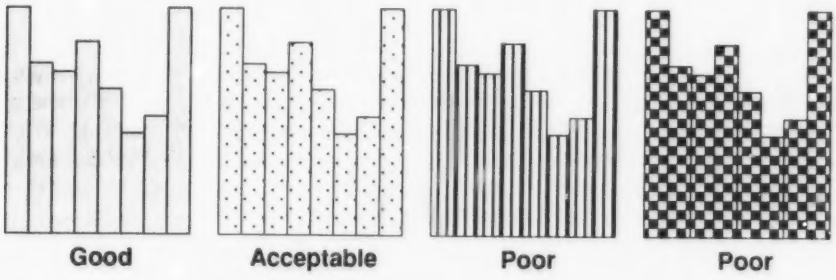


FIGURE 11. Keep fills simple and watch that fill lines do not interfere with axes.

When a single important distinction is being made, red and green are poor choices because 1 in 15 men is red/green colour blind. If these two colours must be used, choose a yellowish green and a purplish red or, conversely, an orangey red and a bluish green. If text is to appear over a colour, choose a light colour such as yellow, pink, or light blue. If text itself is to be coloured, choose a dark bright colour such as red, blue, green or purple.

Keys

Keys are used to inform a viewer of the codes used for a particular graphic. They are most suitable in maps, where the intention is to include all the information that any reader may want, though no reader is likely to need all the information on a map. In publication graphics, keys are used to avoid clutter in complex visuals, especially if one symbol or colour is used in many locations to mean the same thing. Keys have much less of a role to play in a presentation graphic. For one thing, the audience generally will not have the opportunity to learn a key and make the required interpretations while the speaker talks. For another thing, the speaker can explain the code as the visual is discussed. Items that might require a key can often be labelled directly. Finally, presentation visuals should be simple enough not to require the use of keys (Figure 12).

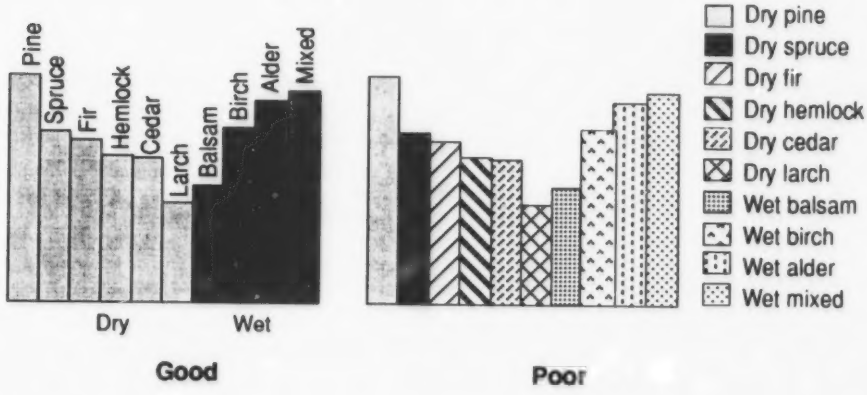


FIGURE 12. Presentation visuals should be simple enough not to require a key.

Layout

Layout refers to the arrangement of figures and text on the page and as they appear when projected. Two aspects to consider are the shape or format of the visual, and the placement of the elements in the visual.

Format of visual

The first consideration is the shape of the visual. Overhead projectors are square, about 11 x 11 inches, but the transparencies used on them are 8 1/2 x 11 inches. Thus, the transparency can be designed and projected either horizontally or vertically (landscape or portrait). When designing an overhead on standard letter paper, leave 1-inch margins on the length, and 3/4-inch margins on the width such that your image area will be 7 x 9 inches. This allows for mounting in a frame, and ensures that all the information will be readily visible when projected.

Slides have a narrower rectangular shape than the standard 8 1/2 x 11-inch paper size of an overhead; their aspect ratio is 2:3. Slides can also be projected horizontally or vertically, but the former is often preferable for several reasons. The horizontal or landscape format is projected above intervening heads in a room, and is thus more easy to view. It is also less tiring for the audience if they do not have to switch between bright horizontal and vertical images in a dark room. It is also easier to adapt horizontal slides to video, as the television format, though more square than a slide, is horizontal. Slides transferred to video tapes or video image libraries lose some picture area all around, but particularly from the right and/or left sides.

When designing a slide on standard letter paper, centre your image in a 6 x 9-inch area on the page. This provides ample margins for photographing the image. If you are using software that creates slides directly, the same ratio of width to height applies. If you want the slides to be shown on television, the safe image area on the original letter paper would be about 6 x 8 inches (Figure 13).

FIGURE 13. Formats for overheads, 35 mm slides, and video relative to an 8 1/2 x 11 inch page.

Placement

The placement or arrangement of information in your visual reflects the organization of your thoughts. The choices are largely common sense, but the material should fit the available area comfortably. The shapes of individual graphs should be chosen to present best the distinctions or ideas you wish to communicate (e.g., two bars comparing values would naturally produce a tall rather than wide graph). Your overall organization should also be consistent throughout your presentation (Figure 14).

Enhancement or distraction

Presentations involving technical data can become boring. In a conference, one more set of data or word visuals can be deadening to the audience. To hold their interest, a little pizzazz may be called for. If your audience has just been looking at black and white graphs, colour may refresh their jaded attention. If all the visuals have been tables, graphs, and words, a few pictorials can enliven the presentation. Conversely, if the audience has been looking at endless examples of site

photographs, a good graph might be refreshing. Part of the issue is pacing, which was presented on page 4, but another part has to do with presenting a visual in a stimulating way.

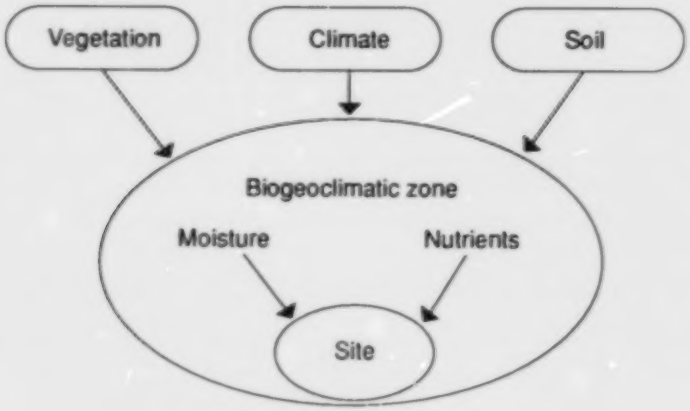


FIGURE 14. The arrangement of information reflects the organization of your thoughts.

There is a fine line to tread in visuals, between designing those which are interesting and exciting, and those which are inappropriate to any given audience. Whatever is added — colour, imagery, or special effects — has to be relevant. Spurious additions, like racy cartoons in a technical meeting, detract from a presentation, but that does not mean you should not risk anything unusual. If you use colour effectively to get a message across, encapsulate a relevant point in a cartoon, or present the analysis of dry data as a humorous quest, the effect can be enormous.

Colour

Colour has both a psychological and a physiological impact on people. Red, and to a lesser extent yellow, will actually increase pulse and breathing rate and show up as excitation on an EEG. These same measures are decreased by blue-green. Pink has been shown to reduce aggression. These physical responses are undoubtedly related to our attitudes towards colours.

Although points listed above should be considered, the generally accepted associations with colour are possibly more significant, such as green for live foliage, brown for dead, yellow for sun or heat, and blue for water or cold. What is also important, given that we rely on our eyes so heavily for information about the world and that we have colour vision, is that we pay more attention and interpret the experience as richer and more meaningful if it appears in colour. Fortunately, we do not require a lot of colour to perceive a visual as "coloured": a single coloured line separating the title from a few key words, two coloured bars in a graph, or a coloured hat on a person is enough to liven up the visual.

As in all enhancements, more colour does not necessarily mean better. It has to be relevant and appropriate.

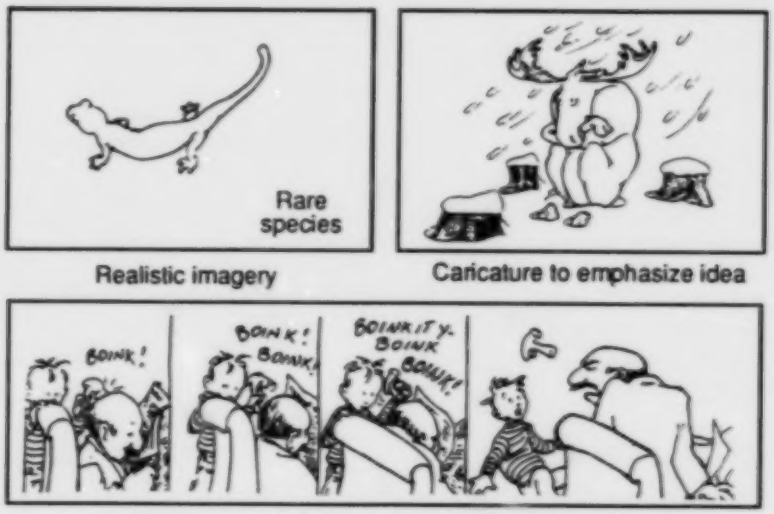
Imagery

Imagery enriches the comprehension of many ideas. By "imagery" we mean visual images such as trees, animals, people, equipment or scenes, which can be realistic, symbolic or caricatured. Imagery can be used to reinforce the link between real objects and abstract ideas being presented. For example, if you are showing a graph that pertains to seedling survival, a

drawing of a seedling can be set alongside the data. Images can specify the domain of the discussion or provide a setting. For example, a title slide may be superimposed on a photograph of the area to which the presentation refers, or two data sets side by side may include inset images to identify the locations from which the data have come. Images can increase attention and improve retention of information by providing the viewer with a visual association. Imagery that incorporates appropriate humour works particularly well in this respect.

It should be noted that misuse of images can damage your presentation as much as skilled use can improve it. The dangers are that the audience may feel patronized if the imagery appears too obvious or simplistic; they may be distracted by the images and fail to pay attention to the message; or they may be put off if the humour is inappropriate. The use of imagery should be directed by whether the images enhance comprehension and do not detract from legibility.

Imagery need not be provided explicitly in the form of pictures on the screen. It can also be created by verbal descriptions that evoke pictures in the mind of the listener. However, presentations that do include visual images are appreciated by the audience (Figure 15).



Realistic imagery

Caricature to emphasize idea

Analogy to communicate concept of biological thresholds

FIGURE 15. Effective use of imagery will help your audience comprehend many of your ideas.

Special effects

Special effects include flourishes like decorative frames, graphs that appear to have depth, the use of pictograms or symbols to indicate quantity, or fancy script. Since they do not add information to the visual, but only decoration, you must ask yourself: does the special effect have the desired effect? For example, three-dimensional bar graphs may appear to be more substantial and more attractive than two-dimensional ones — but they can also appear to be more cluttered. Some can be perceived as unnecessary posturing (Figure 16).

We recommend restraint in the use of special effects, especially if you experience pressure from a graphic designer to use them. To a designer, success may be judged more by the appearance of the visuals than by their effectiveness.

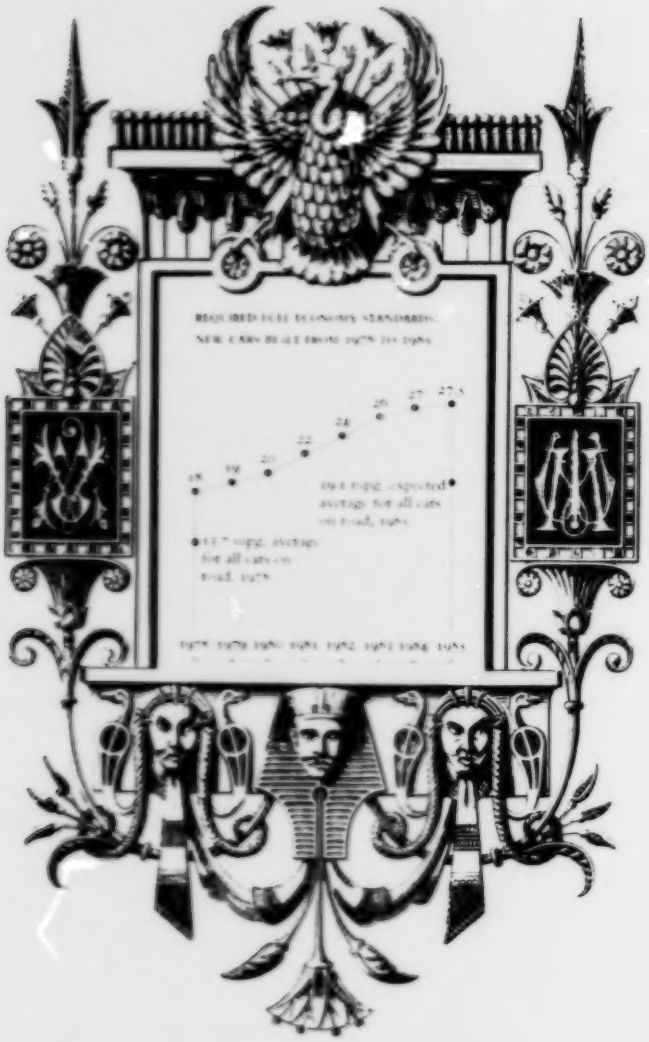


FIGURE 16. Be sure that your special effects produce the desired effect.[2]

Logos

Some corporations include a company logo with every visual they present, with the rationale that the more people see their logo, the more readily the company will come to mind. This is an approach from advertising that most people are familiar with, and hence the repeated logo is perceived as an attempt to sell. Selling is not considered appropriate in educational settings, so logos in conference, seminar or training slides may generate adverse reactions. If credit to an organization is desired, a separate visual can be added, usually at the beginning or end of the presentation.

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2 Figure 16 is reprinted from *Visual Display of Quantitative Information* by permission of Graphics Press, Cheshire, Conn. Copyright 1978, The New York Times Company.

5 PRODUCTION

A wide array of production techniques and systems are available for making overhead and slide visuals. They range from simply printing and drawing by hand with coloured pens on transparency sheets, to using high-powered mini computers which drive complex software programs capable of generating millions of colours and producing 35 mm slides with as many as 8000 lines of resolution.

Obviously, the quality and the suitability of the final product varies with each system, as does the cost. In making the choice among production methods, you need to consider not only cost and time requirements, but your ease of access to the various methods. The formality and profile of the presentation also make a difference; hand-drawn graphs are appropriate for an impromptu or informal presentation, whereas more sophisticated methods may be required for a formal presentation. Visuals that are too "glossy" for the circumstances may reduce the effectiveness of the message as much as ones that are too casual.

It is important to note that the effectiveness of the visual in delivering its message is not so much a function of production technology as of good design. Neat hand printing has the same information content as computer-generated text. Hand-made slides and overheads can be very effective, although complex ones are often labour-intensive and therefore expensive. Computer programs can produce complex graphs from data inputs, but you should not get carried away with detail — keep visuals simple. Keep in mind, however, that computer artwork (drawing) is usually more time consuming than similar hand-drawn work. Another advantage of computer graphics is that once an image is on file, it can be reused and modified indefinitely — and the user only needs to pay for modifications and output of the image to an overhead or slide generator. Hand-drawn graphics can be modified through cut and paste if you use an intermediate black and white stage that is photocopied and coloured for the final product, but full colour art is not easily changed or reproduced.

Overheads

Write-on

Write-on overheads are the quickest, easiest, and most portable production method. With them you can generate a few key overheads at a moment's notice (given you know your material). Only a few materials are required: transparency sheets and special pens that adhere well and have translucent dyes which project well. These pens are available in both permanent and water soluble forms. Permanent ones will not smudge with perspiration, coffee, or raindrops, and they can be erased with alcohol. (Rubbing or lab alcohol can be carried for the purpose, but hard liquor will also work in a pinch). Water soluble pens are useful for editing and adding emphasis during presentations if you plan to reuse the base overhead, because the marks can be easily wiped off with a damp tissue (Figure 17).

Overhead pens are not good for colouring areas, as even the thickest point sizes will not produce an even colour. The options are to colour with an intentional pattern (swirls, dashes) or to use coloured films, as described below.

A travelling kit for impromptu presentations would ideally include about 10-15 transparency sheets; a set of 4 coloured overhead pens (black, blue, red and green, with the optional addition of brown, purple and orange — yellow does not project well); a small metal ruler; two or three half sheets of coloured film; an exactoknife with the blade reversed for travel; a couple of cardboard frames for constructing layered overheads; and some strips of masking tape fastened to one of the transparency sheets. These can all be carried in a large brown envelope.

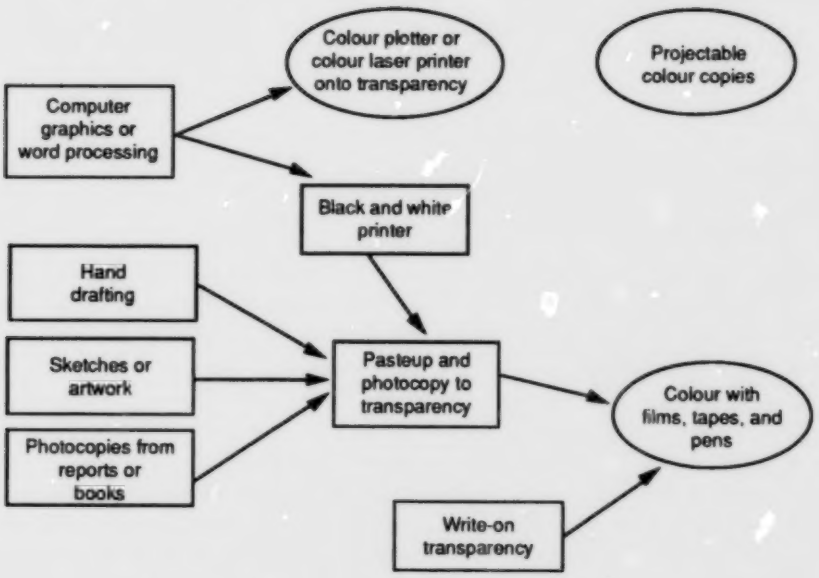
Colour plotter or colour laser printer onto transparency
Projectable colour copies
Computer graphics or word processing
Black and white printer
Hand drafting
Sketches or artwork
Pasteup and photocopy to transparency
Colour with films, tapes, and pens
Photocopies from reports or books
Write-on transparency

FIGURE 17. Flowchart showing several ways to prepare overhead transparencies.

Composites

To produce high quality overheads, a number of techniques can be combined to generate a black and white base which is then photocopied onto photocopy-safe transparency material and coloured. The original black and white copy can combine hand or computer lettering, drawings, computer-generated graphs or graphic elements, and photocopies from any variety of sources. Copyright concerns are negligible. Not only are elements being combined in a collage which may legally use existing work, but there are no profits being made from the presentation, and so there is no incentive to pursue copyright, especially if sources are acknowledged appropriately. Pieces from various sources are arranged on a page and fastened in place, preferably with low tack tape which allows repositioning and conceals edge shadows.

Colouring of the photocopied transparency cell is most easily done with transparent films (e.g., LetrAVision® projectable film) designed for the purpose. On photocopied overheads, the films are applied to the back so as not to damage the carbon deposit. A piece of film slightly larger than the area to be coloured is cut with an exactoknife and peeled from the backing material. This is placed over the area to be coloured, the outline is traced with the exactoknife, and the excess is peeled off. To make this step easy, drawings and graphs to be coloured should have simple outlines with fairly heavy lines. Very small areas are best coloured with overhead pens.

Materials

Materials that are readily available from art or graphic supply stores and can speed up the production of overheads include:

- Letraset® lettering[3]
  - used for black and white paper originals if computer-generated text is unavailable
- LetrAVision®[3]
  - projectable colour films
  - projectable colour tapes (avoid the ones with matte finish)
  - projectable coloured press-on lettering
- high intensity projectable marker pens

Only 8-10 colours are available in most of these products, and some are too intense to be used with text. You must also consider the appropriateness of the colour to the topic and the potential reaction of your audience. If in doubt, do a test run and invite candid feedback from colleagues or potential members of your audience.

Projectable colour copies

Overheads can also be generated from coloured paper or slide originals. The technology for doing this has been rapidly evolving over the last few years, and is likely to change further during the lifetime of this guide. Colour photocopying (e.g., using the Canon Color Copier) produces the copy by adhering three colours of pigment (cyan, yellow and magenta) to the film. These pigments are not fully translucent, so the projected overhead may look dull. Ciba® copies are generated through a photographic process and so provide a full range of projectable colours.

Computer generated

Computer technology is evolving even more rapidly than photocopy technology. There are several requirements for generating computer-based graphics. First, one must have the computer hardware. Currently, three distinctly different systems are most common: DOS as in IBM personal computers and compatibles, Macintosh, and Amiga. Although there are good translators for word processors and computational programs, the ability to transport graphic elements from one system to another is still limited.

The second requirement is software that will allow the user to produce and modify images. Many graphics programs are available for each computer system, and it is beyond the scope of this guide to describe and evaluate them.

The third requirement is an output device to generate the overheads, and the software to "drive" the device. The devices available for computer-generated overheads have, like most things associated with computing, been rapidly evolving, so advice given here may soon be out of date. Currently, the resolution and colour selection of the devices that are available to produce overheads are limited. The best of these include Cal Comp® plotters and the Hewlett Packard Paintjet® printer. The Cal Comp® uses a thermal process to adhere the image to the transparency. It builds its colour palette using lines and hatchings of a small number of pure colours. Some of the colours it creates do not project well, and large areas of solid colour are not recommended. It is important to see and follow the colour palette. The HP Paintjet® also uses a limited palette of inks which are mixed on the

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3 Letraset® and LetrAVision® are popular brands. Other equally good products are available.

overhead and then chemically processed once the transparency is inserted into a special transparent folder which can also serve as a storage pocket. The colours produced by this process are both bright and translucent, and so, good for projection.

For colour work that is also to be reproduced in black and white (e.g., workbooks and handouts) attention must be given to how the colour version prints in black and white. Colours of similar density may reproduce as similar shades of grey, making differentiation difficult. Alternatively, the black and white version can be produced if the colour graphic file is edited to use patterned fills instead of colours. It is usually possible to print a much smaller version of the overhead for print use.

Slides

For many years, 35 mm colour slides have been the standard projection visual, especially where photographic material is desired. It is also possible to photograph graphs, text and artwork, and to use several processing systems to produce slides. More recently, computer technology has made it easy to generate colour slides directly from graphics software programs (Figure 18).

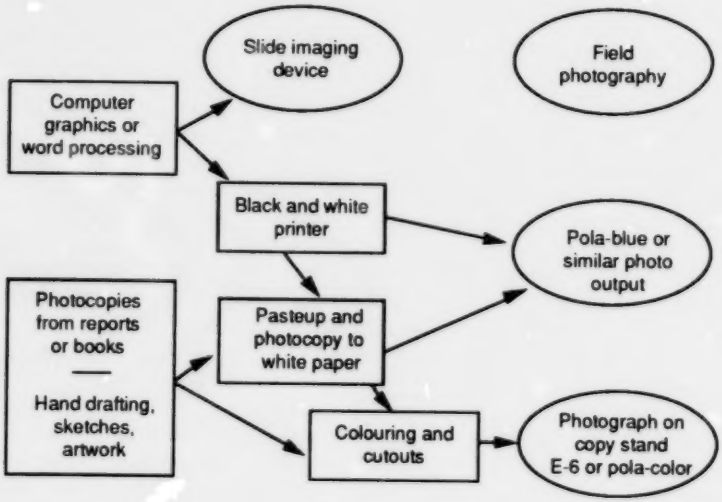
Slide imaging device
Field photography
Computer graphics or word processing
Black and white printer
Pola-blue or similar photo output
Photocopies from reports or books
Hand drafting, sketches, artwork
Pasteup and photocopy to white paper
Colouring and cutouts
Photograph on copy stand E-6 or pola-color

FIGURE 18. Flowchart showing a number of ways to prepare 35 mm slides.

Field photography

Field or "live" photography is still an extremely valuable source of visuals. The appearance of particular locations, species, conditions and configurations is best portrayed with photographs. There are many excellent guides for generating quality photographs.

Optical

Coloured or black and white pictures and text can be prepared for slides. The originals can be photographed using different film and processing types for various effects. "Pola®" (Polaroid®) products are suitable for fast turnaround as they require only a few minutes to process. Pola-blue film generates white lettering and lines on a blue background, and pola-colour film produces coloured slides.

Regular colour slide film can also be used. If the photography is done in daylight or with a flash, film requiring E-6 processing can be used and processed in one day in most larger communities. Check the availability of this service in your area. If tungsten lights are used for photography, special film which corrects the colour balance of this light source must be used.

Methods and materials

The methods and materials available for generating slides vary from "quick-and-dirty" to very sophisticated. Regular black and white photocopies can be enhanced with felt pens and pencil crayons. If the desired image does not properly fit the slide, or a coloured border is desired, the photocopy can be cut out and laid on a coloured piece of paper. Simple hand-drawn sketches may not look as if they are generated by an artist, but, if well conceived, they will be effective in communicating the desired message. Similarly, text can be hand lettered, generated with press on lettering, or output from a word processor or graphic program. Again, colour can be provided with felt pens and coloured paper backgrounds.

Simple cutout drawings, like little trees, suns or people can be used by themselves or in conjunction with graphs and text. They need only be laid down on the original and photographed. Even people who do not consider themselves artists can usually generate simple, effective drawings, especially if they use thick felt pens that bleed and do not permit much detail.

Standard mechanical drafting procedures can be used, as can black and white laser prints from a graphics program. These can be coloured in various ways — using anything from felt pens to crayons. If flat areas are desired, there are two simple methods for colouring. One is to purchase coloured films designed for the purpose (these are different from the projectable films, but available from the same supply sources) and to cut them to fit. The other is to make multiple photocopies of the original using various bright coloured paper stocks, and then to cut the required pieces out of each and assemble them with glue on the base layer.

Generation of sophisticated artwork is usually beyond the reach of people preparing visuals for presentation. Exceptions may occur where you or a volunteer has the ability and have the time; where funding to hire an artist is available; or where the artwork already exists. It is also feasible to photograph from magazines and books, though the texture of the print may be discernible. If the shape of the picture in a book does not fit the slide, you cannot cut it out as with photocopies. Instead you must cut the proper-sized hole in a piece of coloured paper to mask the undesired print, bindings, etc., around the picture.

Copystand

Although slides can be generated from paper originals propped on a suitable surface and photographed with a hand-held camera, doing so is a great deal easier if one has a copystand. Basically, a copystand consists of a flat area for the original, a mounting system that allows you to move the camera up and down, and a lighting system. Commercial copy services, as well as copystands for purchase, are available. You can also generate your own, using an old enlarging stand, or tripod with the camera mounted below, or even a wooden framework which uses C-clamps to position the camera. The camera should have a macro lens (Figure 19).

Commercial copystands usually come with tungsten lighting and operating directions. If you are assembling your own, you will find flash units easier to use. At least two are needed, aimed at the artwork from two directions at about a 45° angle. One flash unit is triggered by the camera, the other by a photocell called a slave unit. To avoid glare, a polarizing filter should be used on the camera, and polarizing material mounted in front of the flash units, with the polarization at a right angle to the camera filter. A roll of film should be shot using a range of apertures and at least two camera distances (close-up and wide angle) to standardize the exposure requirements of the copystand.

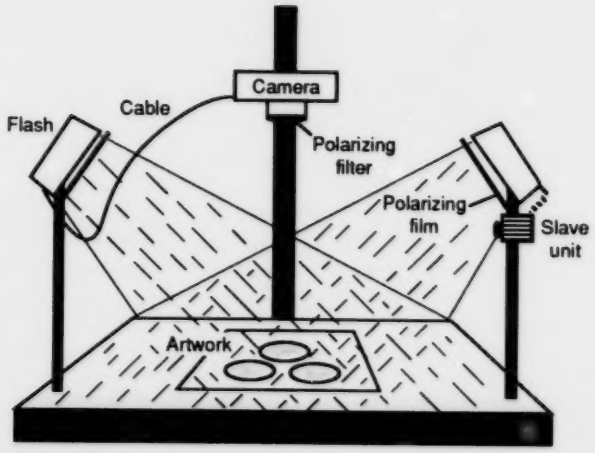

FIGURE 19. Copystand for photographing artwork for 35 mm slides.

Computer generated

Computer-generated slides can also vary from very easy to extremely complex. Generally, text slides and slides generated by graphing or spreadsheet software are very easy. Artwork is time consuming and generally requires special training to do. Simple diagrams or flowcharts are intermediate. The same software can generally be used to generate black and white diagrams for publication, overheads and slides. What differs is the output device. Output determines the quality of visual that can be created. Most programs operate one of several 300 dots per inch (dpi) laser printers. This quality of paper copy is suitable for preparing art that will be photographed onto 35 mm slides or copied onto an overhead transparency with the use of a photocopier or thermal overhead printer.

Programs that drive high resolution film recorders offer the best quality, both in colour range and density, and clarity or resolution. Although generally restricted to the professional or near-professional software, popular PC programs such as Harvard Presentation Graphics® and Lotus Freelance Plus® also drive film recorders.

For computer-generated slides, good results are consistently obtained from light, bright type and illustrations on even, dark-coloured backgrounds. In some instances, the reverse may work equally well. Contrast between the information and the background must always be maintained. Ensure that colours used within a presentation are complimentary. Use passive colours such as grey for less important information such as graph axes. Generally, avoid the use of pale colours that do not project well. A trial run will quickly confirm that you have chosen appropriate colours.

Computer to video

To maintain professional quality during the transfer of computer images to video tape, the computer must be equipped with a video tape recorder (VTR) controller board and be connected to a professional quality VTR. This studio-quality video equipment provides the single frame recording required in the transfer of computer images.

Slides to video

Transferring slides to video tape is achieved with a telecine chain which actually projects the slide into a video camera. The process works well for converting entire slide shows, including multi-projector dissolve shows.

Symbol libraries

A variety of sources are available for symbols. Commercial libraries offer images in the form of slides or software. Files containing "clip art" that are software accessible can be purchased from computer supply stores or through mail orders as advertised in computer magazines. The Vancouver public library has public domain IBM compatible software available for copying; some of this may contain suitable images. These files must be available as computer graphic metafiles (CGM) format to be of use to Harvard, or most other PC software. Other sources of public domain computer images are advertised in the trade magazines.

Consistent use of good design standards means that visuals can be readily integrated into new presentations. This is especially important with complex, expensive visuals — usually illustrations — that show a particular process (e.g., seedling physiological processes). A library of quality forestry symbols is being developed and can be shared with staff involved in extension.

Images that may be transferred to video should be created in the horizontal form, preferably in a 3 x 4 horizontal TV-safe format. Note that in this format the image area is reduced by approximately 25%.

6 SUMMARY

Overhead or 35 mm slide visuals can be important aids to verbal presentations. Selection of a format will depend on the content of your presentation, the size and makeup of the audience, the characteristics of the meeting room, and your objectives for the presentation (e.g., interactive *vs* non-interactive). Plan the sequence of your presentation to help your audience arrive at your conclusion. Plan your visuals so they support and reinforce your verbal presentation at each major step. Production of the visuals will depend to some extent on the time and resources available, their potential for reuse, and the importance of the presentation. Planning can increase the probability of a successful presentation. Take time to find out about your audience, the meeting room, the time allotted for your presentation, and the type of projection equipment that will be available. (If you are concerned, take your own.) Also take time to obtain candid feedback on your presentation from an unbiased observer. Time spent in planning may very well pay off in successful presentations and satisfaction for the audience and speaker.

7 REFERENCES

Bunnell, P. 1988. Guidelines for forestry extension. For. Can. and B.C. Min. For., Victoria, B.C. FRDA Rep. 046. 20 p.

Letraset® Canada Limited. 1988. Letraset® graphic design handbook. Markham, Ont. Available from art supply retailers.

Tufte, E.R. 1983. The visual display of quantitative information. Graphics Press, Cheshire, Conn. 197 p.

CHECKLISTS

Designing Your Presentation (see Developing a Storyline, p. 3)

Your objective

Think about what you want the audience to do differently after your presentation.

Introduction

Provide answers to the following questions:

- who are you?
- why should the audience be interested in what you are going to present?
- what is the structure or order of your presentation?

Roadmap for your presentation

Draw a flowchart of the order of your presentation. Go from the simple to the complex. Note the main points you want to make under each topic in the flowchart.

Summary

List the most important points (usually a maximum of 5) you want your audience to remember.

Creating Foolproof Visual Aids

Ask yourself the following questions about each slide or overhead you intend to use in a presentation. If a design fails any of these questions, check that there is not a better way of presenting the information.

Layout

- design is balanced; there are no large blank spots concentrated in one corner
- diagrams are large enough to be understood from the back of the room
- on text images, there are 7 lines or fewer, and 6 words or fewer per line. If there are more, can the information be separated into two aids, or can overlays or successive slides be used to reduce the amount of information per image?
- design is simple and not busy; in a training session, most aids are shown for a maximum of 2 minutes; for visuals being presented in a workshop or technical setting, 1 minute or less may be available. Can your audience understand your visual in the time available?

Title

- easy to read
- identifies the main topic to be covered

Letter size

- all the words can be read from the back of the room (including the graph axes)
- letter size and line width or thickness indicate the relative importance of the information (most important = largest letters and heaviest lines)

- the type of letter (font) is easy to read (not italic or roman numerals)
- capitals are used consistently (i.e., only at the beginning of the title; only at the beginning of new points; at the beginning of graph axes labels). Words in all capitals are harder to read than words in small letters.

Colour

- has it been used to highlight important information?
- does it distract from the message? (Note: Do you want your audience to remember the colours or the message?)

Graphs

- labels on axes
  * will the units be understood by the audience?
  * are letters and numbers large enough?
- are there more than 4 lines or bars? If there are more, have you used overlays or successive slides?
- three-dimensional graphs must be simple. Can they be understood by the audience in the time available?

Tables of numbers

- have you tried presenting the information graphically?
- if a table must be used, use overlays or successive slides to present anything but the most simple table (e.g., 6 numbers)

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